

REMARKS

The amendments made herein to the abstract and claims do not incorporate new matter into the application as originally filed. For example, the new abstract is based upon current claim 1. Further, the amendments to claim 5 find support at pages 32-33 of the specification, while newly added claims 14-16 find support at page 21, lines 4-20, page 47, line 6 and page 48, line 12, of the specification.

Accordingly, entry of the present amendment is respectfully requested.

Specification/Abstract

According to the Examiner's request in the Office Action, a new abstract has been provided which does not exceed 150 words in length.

Claim Rejections Under 35 USC § 112

Claim 5 has been rejected under 35 USC § 112, second paragraph. Reconsideration and withdrawal of this rejection is requested based upon the amendments made herein to claim 5.

Particularly, upon review of instant claim 5, it is noted that the same simply depends from claims 1, 3 and 4, and further recites that the "agitation impellers have a Froude number of 2 to 10, and

...the disintegration impellers have a Froude number of 200 to 8000." As indicated above, support for this amendment occurs in the specification at pages 32-33 thereof.

Accordingly, because claim 5 as instantly amended particularly and distinctly puts forth the subject matter which Applicants regard as their invention, it follows that the outstanding rejection under 35 USC § 112, second paragraph must be withdrawn.

Claim Rejections Under 35 USC § 102

Claims 1, 3 and 5-13 have been rejected under 35 USC § 102(e) as being anticipated by Kubota et al. (US 6,376,453). Reconsideration and withdrawal of this rejection is requested based upon the following considerations.

Enclosed herewith are English language certified translations of Applicants priority documents JP 10-295819 and JP 11-14805. Because the priority date of these applications (October 16, 1998 and May 27, 1999, respectively) precede the July 22, 1999 35 USC § 102(e) date of the Kubota et al. US 6,376,453 reference, it follows that the outstanding rejection must be withdrawn.

Claim Rejections Under 35 USC § 103

Claims 1, 3-9 and 11-13 have been rejected under 35 USC § 103(a) as being unpatentable over Yamashita '516 (US 5,468,516).

Further, claim 4 has been rejected under 35 USC § 103(a) as being unpatentable over Kubota (US 6,376,453), further in view of Yamashita '516. Finally, claims 1 and 3-13 have been rejected under 35 USC § 103(a) as being unpatentable over Yamashita '501 (US 5,736,501). Reconsideration and withdrawal of each of these rejections is requested based upon the following considerations.

The Present Invention and Its Advantages

As recited in instant claim 1, the present invention is directed to a process for preparing detergent particles. In the processes step (I) a base particle ((a) component) is mixed with a surfactant component ((b) component) under mixing conditions such that the base particle ((a) component) does not substantially undergo breakdown, and wherein the base particle is obtained by spray-drying an aqueous slurry under the following conditions.

"... wherein a mixing operation is carried out by using a mixer comprising agitation impellers of which mixing impellers have a shape of a paddle, wherein the agitation impellers have a Froude number of from 0.5 to 4, provided where the mixer further comprises disintegration impellers, the mixing operation is carried out under mixing conditions so as not to substantially rotate the disintegration impellers..." (emphasis added)

In the processes step (II), the mixture obtained in step (I) is mixed with a fine powder, with substantially maintaining the shape of the ((a) component) containing the ((b) component) to give

detergent particles, wherein the detergent particles have a degree of particle growth of 1.3 or less, and a bulk density of 500 g/L or more. (See claim 1.)

Accordingly, by way of the present invention there is provided a process for preparing detergent particles in which (i) preparation steps are simplified, (ii) variations in the properties of the detergent particles against variations in the formulated amount of the surfactant composition can be suppressed, (iii) particles can be formulated in large amounts, and (iv) which detergent particles possess excellent flowability. More particularly, by the claimed inventive process, one can obtain detergent particles capable of having a large formulated amount of surfactant, through simplified preparation steps, which particles are excellent in dissolubility and excellent in exudation suppression and anti-caking properties.

Still further, the present invention is able to provide advantageous results (i.e., advantageous detergent particles) that are not associated with prior art processes. Such results are achieved by avoiding any substantial use of disintegration impellers in step (I) of the inventive process. In contrast, it is submitted to be conventional and well known in the art to use disintegration impellers at Froude numbers of ≥ 800 in analogous mixing steps, in order to speed up mixing processes and to help

ensure a homogenous or fine mixture of ingredients. The present invention, by not substantially using disintegration impellers in step (I) of the inventive processes, avoids particle breakdown and is thereby able to produce the advantageous detergent particles that are associated with the instant invention.

Distinctions Over Yamashita et al. '516

The cited Yamashita et al. '516 reference provides a process for producing nonionic detergent granules. In claim 1, step (2), the following recitation occurs:

"...granulating a mixture obtained in said step (1) by agitating in an agitating mixer provided at the center position thereof with a rotation shaft having an agitation impeller with a clearance between the agitation impeller and an inner wall of the mixer of from 1 to 30 mm, wherein the agitation impeller agitates the mixture at a Froude number of from 1 to 4 to form a layer of said mixture on said inner wall of said mixer so as to increase a bulk density of granules of the mixture, step (2) being carried out for a period of time sufficient to granulate said mixture obtained in said step (1), whereafter step (3) is carried out; and..." (emphasis added)

As shown above, in step (2) of claim 1, in Yamashita '516, the adhesion layer of the mixture is formed on the inner wall by granulating a mixture in an agitating mixer provided at the center position with a rotation shaft having an agitation impeller with a given clearance between the agitation impeller and an inner wall of the mixer. This step is a compression and rolling granulation

(e.g., see column 7, lines 11-45) so that it is different from the mixing conditions as defined in claim 1 of the present application such that the ((a) component) does not substantially undergo breakdown. Accordingly, a degree of particle growth of the thus obtained detergent particles would be rather large in the invention of Yamashita '516, and as such would not fall within the parameters of the instant invention wherein it is specified that the "particles have a degree of particle growth of 1.3 or less". Notably this parameter is also recited in each of independent 3 and 4 of the instant application.

Based upon the above considerations, it is clear that the cited Yamashita et al. '516 patent does not teach or provide for each of the elements recited in the present claims, and completely fails to provide any motivation to those skilled in the art to arrive at the instant invention as claimed, and therefore its disclosure is incapable of rendering the instant invention as recited in each of claims 1 and 3-16 obvious under 35 USC § 103(a).

Distinctions Over Yamashita et al. '501

The cited Yamashita et al. '501 reference is concerned with a method for producing nonionic detergent granules. In the provided process in step (II) a heating granulating step is set forth as described below:

"...heating the mixture obtained in step (i) at least to either (a) a temperature of not less than a melting point of the obtained mixture of components (i) and (ii) in step (I) or (b) a temperature not less than a melting point of a component having the highest melting point of components (i) and (ii) in step (i) capable of neutralizing said acid precursor of the anionic surfactant in an agitating mixture thereby forming a gelled product containing said nonionic surfactant, and granulating said gelled product which acts as a binder while tumbling the agitating mixture at either of said temperatures thereby increasing a bulk density, to give nonionic detergent granules having a bulk density of from 0.6 to 1.2 g/ml." (*emphasis added*)

Accordingly, in step (II) of the process recited in claim 1 of Yamashita et al. '501, there is provided the step of "granulating said gelled product which acts as a binder". Based on this recited step, it is submitted that a degree of particle growth would occur in the Yamashita et al. '501 particles that would be greater than the recitation of "1.3 or less" in Applicants' pending independent claims 1, 3 and 4, noted above. Namely, the particles produced by the process of claim 1 of the Yamashita et al. '501 reference would be expected by those skilled in the art to produce a degree of particle growth above 1.3 as recited in the instant independent claims 1, 3 and 4.

Because of the above noted distinction, it is clear that the cited Yamashita et al. '501 reference is incapable of rendering obvious the instant invention as claimed, since it provides no

teaching, disclosure or motivation to those of ordinary skill in the art to arrive at the instant invention as claimed.

Accordingly, because neither of the cited Yamashita '516 nor '501 references provide any teachings with regard to controlling the degree of particle growth, and provide no teachings or disclosures which would allow one of ordinary skill in the art to arrive at the instant invention as recited in each of pending claims 1 and 3-16, including all of the limitations thereof, it follows that said references cannot stand as a proper basis for rejecting any of Applicants' claims 1 and 3-16 under 35 USC § 103 for obviousness, whether such Yamashita '516 and '501 references are considered singularly or in combination.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance, clearly indicating that each of the present claims 1 and 3-16 are allowable at present.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Appl. No. 09/581,594

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s): Abstract of the Disclosure;
Verified English Translations of Japanese
Priority documents